



Fecal Accidents in Hot Tubs and Swimming Pools

Health Education Facts

Occurrence

Accidental fecal contamination of public swimming pools, spas, hot tubs, and therapeutic whirlpools may occur commonly. Such events may involve visible contamination and be reported to facility operators, or may be unapparent and known to neither operators nor patrons.

What are the risks to the public?

Such events may pose a risk of infection for other bathers from a number of viral, bacterial, and protozoan organisms, including hepatitis A virus, salmonella, shigella, giardia, cryptosporidium and others. These organisms may be in the intestinal tracts of infected individuals and may be released in a fecal accident.

What is the appropriate response to protect bathers?

Smaller facilities such as hot tubs, spas, and whirlpools should be drained, sanitized with a 1:10 chlorine bleach/water solution or equivalent disinfectant, and refilled with clean water prior to further use.

With larger facilities for which frequent refilling may not be economically feasible, the following steps should minimize risks:

- (1) Upon being notified of an accident, the operator should suspend use of the facility for the time necessary to carry out steps 2 and 3;
- (2) any visible contamination should be removed; and
- (3) a hyperchlorination procedure should be performed as described below.

Larger facilities, including swimming pools, should be drained, sanitized, and refilled with clean water prior to further use *if* the facility has been implicated in the transmission of an infectious disease *regardless* of whether a fecal accident has been documented.

Hyperchlorination

Hyperchlorination consists of sustaining a specified concentration of chlorine for a specified period of time adequate to destroy infectious organisms. The measure of hyperchlorination is "contact time" -- concentration of free residual chlorine in parts per million (ppm) multiplied by the time, in minutes, for which that concentration is sustained. A contact time of 30, or 3 ppm for 10 minutes, or other combination, should destroy most known organisms of concern.

One exception is cryptosporidium parvum, which requires a contact time of 9,600. Although cryptosporidium outbreaks are uncommon and the recommended response entails greater expense, there have been documented outbreaks associated with public swimming pools. This organism is destroyed by a level of 10 ppm for 16 hours or 20 ppm for 8 hours, or overnight.



In order that the hyperchlorination procedure be effective, it is essential that:

- C during the procedure, the free residual chlorine concentration be measured, not the total chlorine; and
- C the water temperature be maintained at 25EC (77E F) or above for the full contact time.